



Memorandum

Date November 26, 1985

From Acting Director
Office of Health Assessment

Subject Great Lakes Carbon Corporation
Niagara Falls, New York

To Mr. William Nelson
EPA Superfund Office, Room 402
Region II
26 Federal Plaza
New York, New York 10007

EXECUTIVE SUMMARY

Preliminary sampling data for surface waters, sediments, and soils were evaluated for potential health impacts. Based on the data received, the contaminant concentrations do not pose an imminent health threat due to the limited potential for exposure. Off-site migration of contaminants is possible, but potential public health impacts can not be evaluated using the data provided for review.

BACKGROUND

The Great Lakes Carbon Corporation is a 36 acre graphite manufacturing facility located in Niagara Falls, New York. The facility is located in a highly industrial and commercial section of Niagara Falls and there are no residences within one-quarter mile of the site. From 1939 until 1966, Great Lakes Carbon disposed of carbon, graphite, coal dust, and sand, in a 7 acre landfill located on their property. The landfill surface is presently compacted and graded but is not lined or capped.

Preliminary soil, sediment, and water samples were collected in June 1985. The Environmental Protection Agency, Region II, is requesting the Agency for Toxic Substances and Disease Registry to evaluate the data for potential public health implications.

DOCUMENT REVIEWED

NUS CORPORATION, "Presentation of Analytical Data from Great Lakes Carbon Corporation, Niagara Falls, New York", September 27, 1985.

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PRINCIPAL CONTAMINANTS

Four water samples, two sediment samples, and four soil samples were collected. Significant water contaminants included phenols (61 and 98 ppb), barium (1800 ppb), chromium (53 ppb), and mercury (1.4 ppb). Polynuclear aromatic hydrocarbons (PAH) were the predominant contaminants of soils and sediments, with concentrations ranging from 2.3 to 180 mg/kg. Beta-BHC was detected in one soil sample at 5.2 mg/kg and unusual concentrations of barium (6160 mg/kg) and mercury (7.2 mg/kg) were reported for one sediment sample.

EXPOSURE PATHWAYS

Potential exposure pathways include ingestion of contaminated soils, sediments, or waters, inhalation of contaminated dusts, or dermal absorption during direct contact with contaminated sediments or soils. Because this site is located in a heavy industrial area, with the primary receptors being adults, ingestion and dermal absorption would be of concern only to those working with the contaminated soils or sediments. There is the possibility that contaminants could migrate off-site using either surface or groundwater as a transport media. Under this scenario, those living in nearby residential areas might be exposed to these contaminants. For the site alone, inhalation of dusts could prove the most likely pathway, but only under scenarios where large quantities of fugitive dusts are generated and the duration of exposure is extended.

ENVIRONMENTAL PATHWAYS

As discussed above, the potential exists for contaminants to migrate off-site. Surface water samples appear to show evidence of contamination (we have no background samples to compare to on-site samples). However, the heavy metal concentrations are greater upstream from the site than downstream. This may indicate heavy metal contaminant migration from sources other than Great Lakes Carbon. No information has been received on groundwater quality for the site. Because only preliminary sampling and background data have been received, we can not comment further on potential environmental pathways.

DISCUSSION

Polynuclear aromatic hydrocarbons are ubiquitous in industrial areas and it is not surprising that they are

found on the Great Lakes Carbon site. Polynuclear aromatic hydrocarbons are strongly adsorbed by many soils and their presence in stream sediments is not unusual. Unfortunately, very little toxicological information is available on low level exposure to PAH, although many PAH are carcinogens and contact should be minimized. However, even though the information is limited, we believe the PAH soil and sediment concentrations at this site do not constitute an imminent public health threat because of the limited potential for exposure.

There is a potential for off-site migration of PAH through soil and/or sediment transport during runoff. With the information currently available, it is difficult to determine if such migration poses a significant health hazard to downstream surface water users. Because PAH would probably be bound to sediment particles, human exposure would be unlikely except through incidental dermal contact with sediments or ingestion of contaminated aquatic life.

Apparent contamination was detected in two surface water samples taken from a small creek that crosses the site. Phenol and chromium were found at levels much lower than their respective Ambient Water Quality Criteria (AWQC) for human health (assuming trivalent chromium). Barium and mercury were detected at concentrations greatly exceeding the National Interim Primary Drinking Water Regulation (NIPDWR) standards of 1 mg/l for barium and the AWQC of 0.144 ug/l for mercury. Levels were an order of magnitude higher upstream than downstream and the same contaminants were not detected in sump discharges from on-site sources. Sediment samples taken in conjunction with the surface water samples show a similar decrease in concentration, with higher values detected upstream than downstream. This may be indicative of contaminant migration from an unknown off-site source.

Other than the contaminants discussed above, concentrations of inorganic and organic compounds found in surface waters, sediments, and soils were considered unremarkable.

Surface water, sediment, and soil contamination should not pose a health threat to those working on site. Contaminated surface waters and sediments may impact adversely on downstream users. Health impacts could be realized by individuals ingesting the surface waters or consuming contaminated fish. We have no information which would enable us to evaluate this potential.

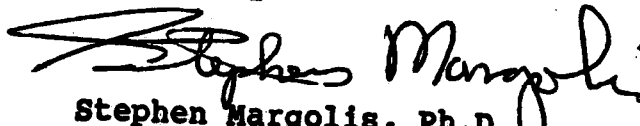
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The sampling data received is preliminary and does not constitute a full investigation of this site. Our conclusions and comments reflect only the information we have received on the four surface water samples, two sediment samples, and four soil samples. Additional soil, air, and water sampling, with appropriate background samples for comparison, would be necessary for a more thorough discussion.

CONCLUSIONS

1. Based on the data received, the surface water, soil, and sediment contaminant concentrations do not appear to pose an imminent public health threat.
2. There is a potential for contaminant migration off-site. The impact on downstream water consumers, if any, can not be determined at this time.
3. If not already in place, some means to restrict access of unnecessary persons to the site should be considered.

We hope this information is useful to you.


Stephen Margolis, Ph.D.